Handbuch / Manual

easyTRX2 S – Serie
Class B AIS CS Transceiver

Stand 1.5

Weatherdock AG
Sigmundstraße 180
D-90431 Nürnberg
Tel. :+49 911 37 66 38 30
Fax: +49 911 37 66 38 40
Web: www.weatherdock.com
Email: support@weatherdock.de

PRODUCED BY weather dock
EXCELLENCE IN RADIO TECHNOLOGIES

14 Start of the English User-Manual

PLEASE READ THIS FIRST!

GENERAL WARNINGS

ALL MARINE AUTOMATIC IDENTIFICATION SYSTEM (AIS) UNITS UTILIZE A SATELLITE BASED SYSTEM SUCH AS THE GLOBAL POSITIONING SATELLITE (GPS) NETWORK OR THE GLOBAL NAVIGATION SATELLITE SYSTEM (GLONASS) NETWORK TO DETERMINE POSITION. THE ACCURACY OF THESE NETWORKS IS VARIABLE AND IS AFFECTED BY FACTORS SUCH AS THE ANTENNA POSITIONING, HOW MANY SATELLITES ARE USED TO DETERMINE A POSITION AND HOW LONG SATELLITE INFORMATION HAS BEEN RECEIVED FOR. THEREFORE IT IS DESIRABLE WHEREVER POSSIBLE TO VERIFY BOTH YOUR VESSELS AIS DERIVED POSITION DATA AND OTHER VESSELS AIS DERIVED POSITION DATA WITH VISUAL OR RADAR BASED OBSERVATIONS.
THE EASY TRX2S SOFTWARE IS INTENDED FOR USE AS AN INSTALLATION AND CONFIGURATION TOOL. THE APPLICATION IS NOT A NAVIGATION TOOL AND SHOULD NOT BE USED AS SUCH.

LICENSING for Class B transmitter easyTRX2S

IMPORTANT INFORMATION:

IMPORTANT: IN MOST COUNTRIES THE OPERATION OF AN AIS UNIT IS INCLUDED UNDER THE VESSELS MARINE VHF LICENSE PROVISIONS. THE VESSEL ON TO WHICH THE AIS CLASS B UNIT IS INSTALLED MUST THEREFORE POSSESS A CURRENT VHF RADIOTELEPHONE LICENSE FOR THE AIS CLASS B UNIT WHICH LISTS THE AIS SYSTEM AND THE VESSEL CALL SIGN AND MMSI NUMBER. PLEASE CONTACT THE RELEVANT AUTHORITY IN YOUR COUNTRY FOR MORE INFORMATION. IN ACCORDANCE WITH OUR POLICY OF CONTINUAL DEVELOPMENT AND PRODUCT IMPROVEMENT THE EASYTRX2S HARDWARE AND SOFTWARE MAY BE UPGRADED FROM TIME TO TIME AND FUTURE VERSIONS OF THE EASYTRX2S MAY THEREFORE NOT CORRESPOND EXACTLY WITH THIS MANUAL. WHEN NECESSARY, UPGRADES TO THE PRODUCT WILL BE ACCOMPANIED BY UPDATES OR ADDENDA TO THIS MANUAL. PLEASE TAKE TIME TO READ THIS MANUAL CAREFULLY AND TO UNDERSTAND ITS CONTENTS FULLY SO THAT YOU CAN INSTALL AND OPERATE YOUR AIS SYSTEM CORRECTLY.

Information contained in this manual is liable to change without notice. Weatherdock AG disclaims any liability for consequences arising from omissions or inaccuracies in this manual and any other documentation provided with this product.

WARNINGS AND PRECAUTIONS

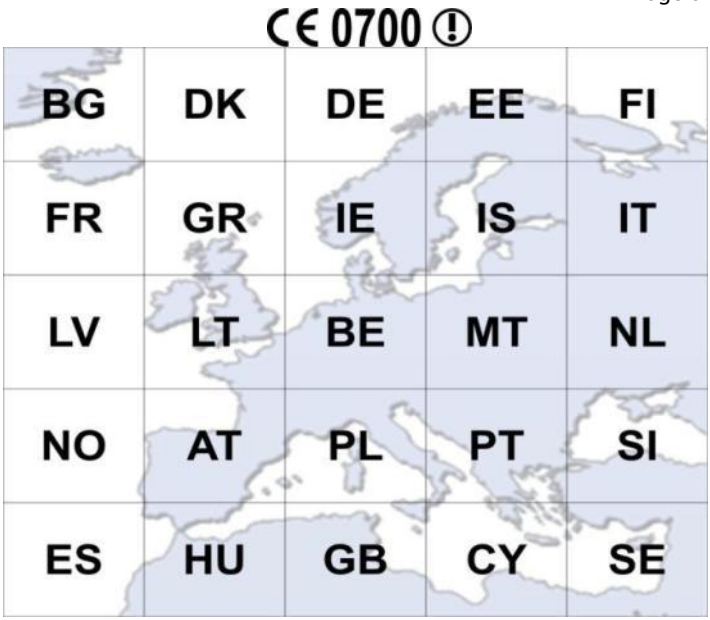
IT IS THE SOLE RESPONSIBILITY OF THE OWNER/OPERATOR OF THE SHIP TO COMMAND THE VESSEL SAFELY AND TO BE IN FULL CONTROL OF ALL OPERATING CONDITIONS DURING THE ENTIRE TRAVEL TIME. BY MISTAKEN CONDUCT OF THE OPERATOR OF A SHIP EQUIPPED WITH A DEVICE FROM THE EASYTRX2S PRODUCT LINE IF THE OPERATOR DOES PAY UNDIVIDED ATTENTION TO OPERATION AND SURROUNDING CONDITION DAMAGE OR PERSONAL INJURY MAY BE CAUSED IN THE EVENT OF AN ACCIDENT.

CAUTION:

IT IS THE DUTY OF THE OPERATOR TO HANDLE THE EASYTRX2S OR ITS DERIVATIVES WITH CARE. THE DEVICE CANNOT RELEASE YOU FROM YOUR OBLIGATIONS OF DUE DILIGENCE!

THUS IT IS IMPORTANT AT ALL TIMES TO KEEP A PROPER LOOKOUT.

THIS SOFTWARE USES COMPONENTS AND SOURCE CODE DEVELOPED BY OTHER COMPANIES OR GROUPS.
MICROSOFT .NET FRAMEWORK V2.0: COPYRIGHT © 2005 MICROSOFT CORPORATION
ALL TRADEMARKS MENTIONED IN THIS DOCUMENT ARE THE PROPERTY OF THEIR RESPECTIVE OWNERS.
© 2010 WEATHERDOCK AG
COPYING OF THIS DOCUMENT AND GIVING IT TO OTHERS AND THE USE OR COMMUNICATION OF THE CONTENTS THEREOF, IS FORBIDDEN WITHOUT EXPRESS AUTHORITY. OFFENDERS ARE LIABLE TO THE PAYMENT OF DAMAGES.



Responsible authority

Please find the official form you need for registration at the Federal Network Agency for the use of an easyTRX2S Transceiver unit in Germany as a PDF file for print out on the enclosed CD.

License Number BSH:

BSH/46162/4320939/10

Bundesamt für Seeschifffahrt und Hydrographie (BSH)
Bernhard-Nocht-Straße 78
D-20359 Hamburg

System requirements
The easy TRX2S programming application is designed to operate with Microsoft Windows® 2000 (SP 3), XP (SP 2), Vista and Win 7.
Recommended minimum system requirements are:

- Microsoft Windows® 2000 SP3 or Microsoft Windows® XP SP2
- Display resolution of at least 1024 x 768
- At least one USB port

15 What is AIS??? – In a nutshell

Substantial investment over the last few years has resulted in the fact that transport safety systems in coastal waters are considered to be the most modern worldwide. The introduction of AIS technology by the International Maritime Organisation (IMO) will contribute to the currently available traffic information and thus improve navigation safety.
This data is exchanged automatically and in short intervals between AIS devices via specific VHF transmitters and receivers.
The VHF transmitting unit transmits the data telegram via one of two internationally defined AIS radio frequencies. One of the characteristics of AIS technology compared to other radio services is the automatic organization of several AIS devices on just one radio frequency without disturbing each other.

This is achieved by the SOTDMA transmission method („Self Organising Time Divison Multiple Access").

The data is transmitted within one or more time-slots via the two radio channels which are reserved for AIS devices. Each device generates its own transmission schedule based on the observed past data traffic and the knowledge about future actions of other AIS devices within radio range. In this respect, the necessary time slots needed for the transmission are occupied. The transmitted data packets are received by every ship within radio range, which is also equipped with such a device to ensure the transmission of the above-stated data. The dynamic ship data is transmitted quite frequently compared to the

static and journey-related data, which is only sent at minute intervals. The transmission of data telegrams happens automatically, in short time intervals, depending on the situation, i.e. speed and current maneuver situation. For example, if a commercial ship lies at anchor it only sends a message every three minutes, if it is moving and putting about at the same time it sends at two second intervals.

15.1 What AIS standards do exist and are valid?

The "Class A" AIS service is described in the document ITU-R M.1371-1 where R stands for „Recommendation".
This „standard document" is valid for AIS data transfer with specifications for the so-called „Class A" and „Class B" Service.
As mentioned previously, "Class A" Transceivers operate with the so-called SOTDMA method.
The use of „**Class A**" Transceivers is mandatory in the **professional shipping** as they are obliged to report.

Operation of „Class B" Transceivers is described in document EN62287. The observation of the properties specified in the standards is obligatory for „Class B" Transceivers.
„**Class B**" Transceivers are not mandatory and are commonly used in the **leisure boat area**.
The devices of the product line easyTRX2S are „Class B" Transceivers.

15.2 Summarized (abridged) content of the "Class A" standard: EN61993-2-2002

The telegram of a „Class A" transmission consists of three different types of messages:

Dynamic information:

- MMSI number
- position of the ship (derived from GPS)
- time, when the position was measured in UTC

- course over ground (COG)
- speed over ground (SOG)
- heading (HOG)
- type of vessel
- rotational speed/turn rate

Static information:

- call sign and name of the vessel
- length and width of the vessel
- IMO-number of the vessel, if existent
- type of vehicle
- position of the GPS sensor onboard

Journey-related information:

- draught of the vessel
- type of cargo
- port of destination and estimated time of arrival (ETA)
- route plan, optional

The block of dynamic information is the most important block with regard to threatening collisions. Therefore this block of information is transmitted in a compulsory way, depending on the vessels movement. The following table shows the mandatory repetition rate of the "Class A" Transceiver linked to the ship's movement:

anchored vessels:	3 minutes
vessels at 0 – 14 kn:	10 seconds
vessels at 0 – 14 kn, fast maneuver:	3.3 seconds
vessels at 14 – 23 kn:	6 seconds
vessels at 14 – 23 kn, fast maneuver:	2 seconds
vessels at > 23kn:	2 seconds
vessels at > 23 kn, fast maneuver:	2 seconds

The static data such as information regarding the journey is dispersed every 6 minutes.
This data is sent in turns according to the stipulated period to the one (161.975 MHz) and subsequently to the other channel (162.025MHz).
As mentioned previously, the „Class A" Transmitter operates with the so-called SOTDMA method (self-organized time division multiple access).

This is a „self-organized time slot allocation for telegrams, which means that the ship listens to the radio traffic and determines the information contained in these telegrams and on which "time slot" the own transmitter may transmit without overriding other telegrams.
The complex SOTDMA method is replaced by a technically simpler method CSTDMA for Class B-Transponders.
CSTDMA means „Carrier Sense Time Division Multiple Access"
At the beginning of a timeslot the **Class B device** [1]checks **whether** the **channel is occupied** or not and then **sends its message**. This method is best described as "listen-before-talk-method". A "Class B" Transmitter simply listens and then transmits on a free time slot without checking this in detail once again or coordinating with the other participants.

The following table shows the stipulated repetition rate of a „Class B" Transceiver depending on the speed of the ship.
Dynamic information:

boats at < 2 kn:	3 minutes
boats at > 2 kn:	30 seconds

The static data such as the information regarding the journey is dispersed every 6 minutes. (as in „Class A")
This data is sent in turns according to the stipulated period to the one (161.975 MHz) and subsequently to the other channel (162.025MHz).
The above-mentioned repetition rates apply to the standard operation.

The „Class B" Transmitter does not have its own automatism to change the repetition rate independently, except for the above-stated values. Authorities may in exceptional cases reduce the repetition rate to 5 seconds or refuse admittance of the „Class B" to the SOTDMA method (e.g. in the case of heavy traffic) within their responsibility.

The above-stated information does not raise a claim for completeness of contents and infallibility but rather serve as an introduction to this

[1]

issue. For more information please contact the Bundesamt für Seeschifffahrt und Hydrografie (Federal Maritime and Hydrographic Agency) in Hamburg.

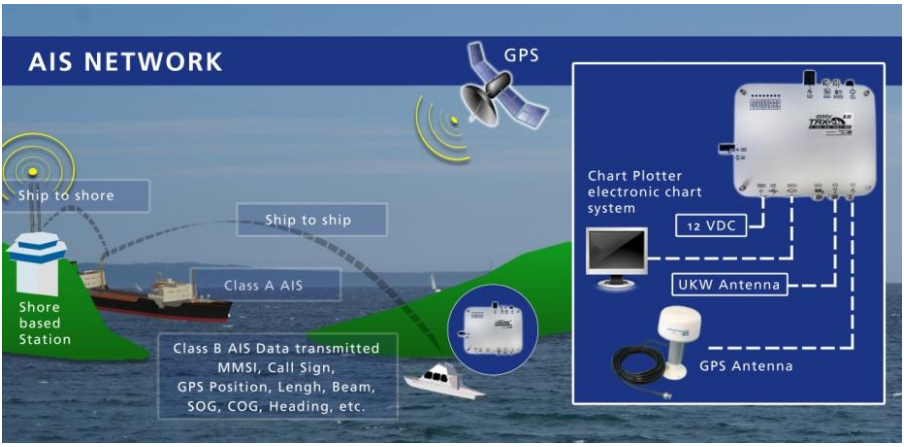


Abbildung 26-AIS Network

16 SCOPE OF DELIVERY

Included in delivery are:

- The corresponding device of the easyTRX2S product line
  Connection cable for power supply, data transfer and external switches
- User's manual
- Software installation CD for programming of ship-specific data
- WiFi antenna for the devices easyTRX2S-WiFI & easyTRX2S-IS-WiFi
- USB cable

17 Programming

17.1 Static data

- Installation of the PC software
  - Connection of the easyTRX2S device by means of the supplied cable to the USB port of the PC
  - THEN, connection of the easyTRX2S device to 12VDC
- Start the easyTRX2S Programming Software.
  Configuration of ship data (enter the MMSI carefully), although the MMSI is usually entered by the distributor.

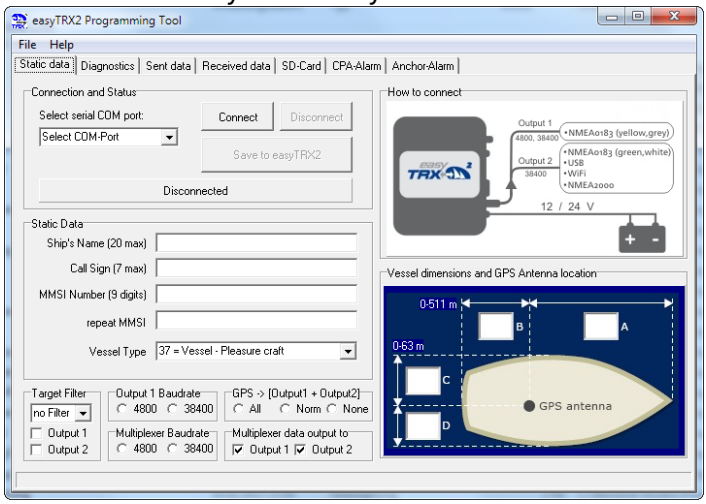


Abbildung 27-Static data

The software is designed plain and simple. You need to enter the MMSI and the other ship data. Please keep in mind that the MMSI can only be entered once. Please contact your service partner if the MMSI was entered wrongly or if you are required to enter a new and different MMSI. He can reset the MMSI.
To program your ship-specific data connect the easyTRX2S device with your PC by means of the USB cable. In addition ensure 12VDC power supply.

Initially select the COM port the easyTRX2S device is connected to and click on „connect“.

The NMEA port of the Class B Transponder is preset to 38400 baud by default. You can change the baud rate with the RS422 (NMEA0183) software if you have a chart plotter whose NMEA input allows only 4800 baud. Please us the grey and yellow cable for this feature. Another option is the output of GPS information. The devices of the esasyTRX2S product line can output the GPS data of the integrated receiver via NMEA or USB port. This is useful if your chart plotter does not have its own GPS. A minimum output of GPS data (RMC, GGA) is set as a standard feature by default. It is possible to dismiss the output entirely or to set it to maximum information (RMC, GGA, GSV, VTG, GLL and GSA), if the chart plotter requires.

17.2 Diagnostics

If you select the tab „Diagnostics“ you will get lots of information concerning the status quo of the easyTRX2S device.
Error message due to missing MMSI

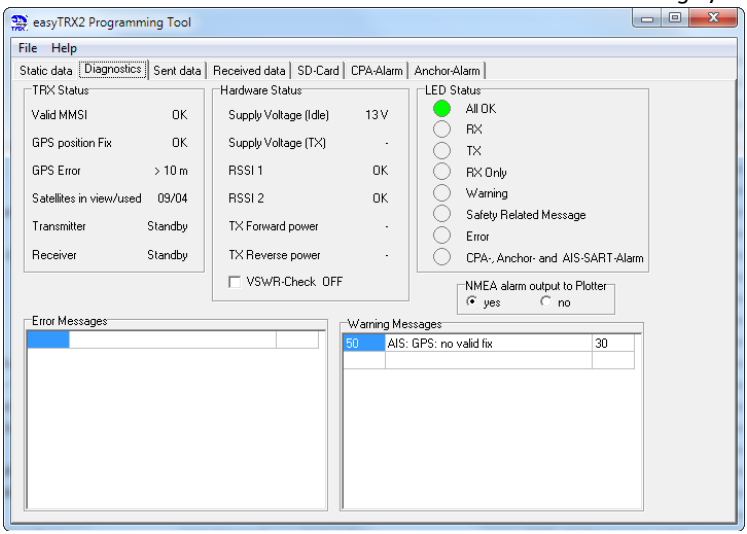


Abbildung 28-Diagnostic

The box „**TRX Status**“ gives you information about:

- Valid MMSI: Once a valid MMSI was entered it says "OK". Status OK is required for transmitting data.
- "GPS position fix": If your GPS is working properly, status "OK" is given.
- "GPS Error": Value is always >10 m. Used as a hint regarding the accuracy class of the internal GPS. Normally the GPS of the TRX2S will be >10m.
- "Satellites in view/used": Shows the number of received GPS satellites and how many of them are used for position fixing.
- "Transmitter": Once the transponder has sent data for the first time, the status changes from "Standby" to "OK". If there is any fault in the device, "Error" is displayed and the device does not work properly anymore (needs repair). The box “Error Message” gives information about the error.

- "Receiver": When the device has received AIS data for the first time after switch-on the status changes from "Standby" to "OK". If there is any fault in the device, "Error" is displayed and the device does not work properly anymore (needs repair). The box “Error Message” gives information about the error.

The "**Hardware Status**" displays the value of operating voltage. Important is the value stated in "Supply Voltage (TX)". This is the voltage level during transmission. Here the easyTRX2S device is shortly drawing approx. 2 A. If the cables are too thin and very long, the voltage may drop down well below the "Idle"-level (resting value) which might guide to a lower radiation performance. Perhaps you should consider using cables with larger copper diameter and check all contact connections, respectively.

The values RSSI1 and RSSI2 give information, if there are any interferers on the two AIS frequencies. This may be caused by e. g. a faulty electrical device on board. If there are no interferers the status is "OK".

"TX Forward Power, TX Reverse Power" are "OK" if the connected VHF antenna is working properly. If the antenna has short circuited or the antenna cable is disconnected "Error" is displayed.
The **LED display** of an easyTRX2S device is also displayed in the software.

If the check routine of the easyTRX2S device noticed any fault, or if there is a warning, a short notice will be given in the respective tables. The easyTRX2S executes a self-test every 30 seconds and displays the result. As a result each error or warning report has got a countdown of 1 minute. This means the report disappears from the table if the error or warning message is not received once again within 1 minute. Thus the error or warning no longer exists.

17.3 AIS transmitting data

The tab "Sent Data" gives information about the last AIS data sent by the easyTRX2S Transceiver.

This is on the one hand the "Position Report" (AIS-Message No. 18), which transmits MMSI, position, speed and bearing. Below you can see how much time elapsed since the latest transmission. This can be up to 3 minutes, if your speed is less than 2 kn or 30 seconds if your speed is faster. On the other hand there is the "Static Data Report" (AIS-Message No. 24), which includes MMSI, ship's name, call sign, ship's dimensions and vessel type. This message is sent every 6 minutes.

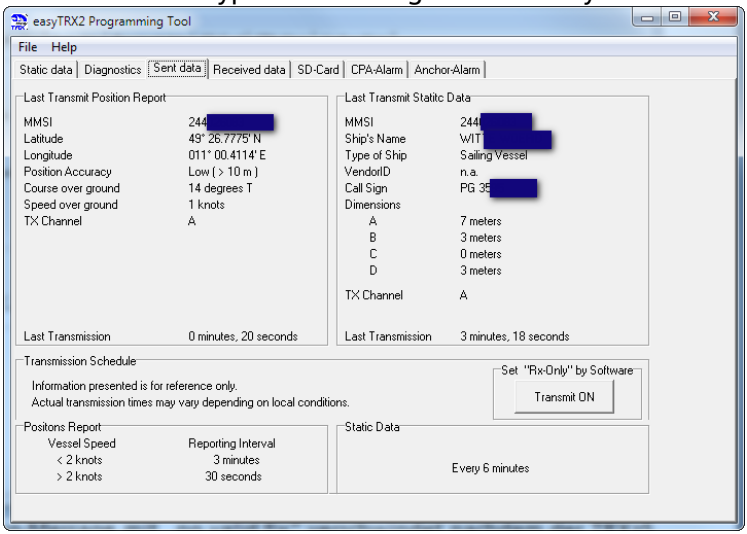


Abbildung 29-Sent data

17.4 AIS receiving data

On the tab "Received Data" you can see a list of current received AIS data. By using the drop down menu "Data Columns" you can show and blank out columns.
As the static data report is sent every 6 minutes you have to wait for approx. 15 minutes to see ship names referring to the listed AIS data. If AIS targets are too far away the reception might be uncertain due to the wide range. It is entirely possible that data is received delayed or not received at all.

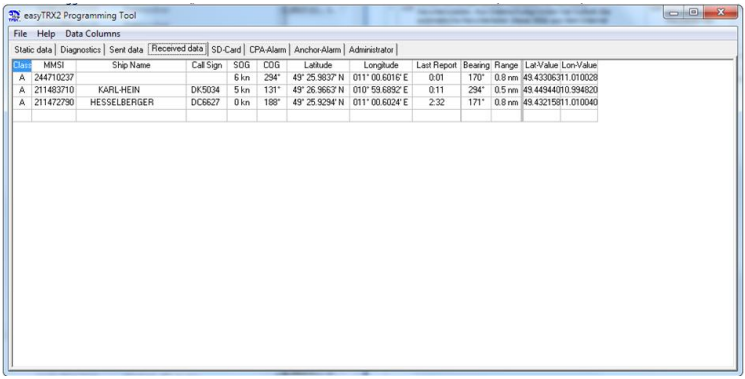

easyTRX2 Programming Tool
File Help Data Columns
Static data Diagnostics Sent data Received data SD-Card CPA-Alarm Anchor-Alarm Administrator
Class MMSI Ship Name Call Sign SOG COG Latitude Longitude Last Report Bearing Range Lat-Value Lon-Value
A 244710237 6 kn 294° 49° 25.9837' N 011° 00.6016' E 0:01 170° 0.8 nm 49.4330631 1.010028
A 211483710 KARL-HEIN DK5034 5 kn 131° 49° 26.9663' N 010° 59.6892' E 0:11 294° 0.5 nm 49.4494401 0.994820
A 211472790 HESSELBERGER DC6627 0 kn 188° 49° 25.9294' N 011° 00.6024' E 2:32 171° 0.8 nm 49.4321581 1.010040

Abbildung 30-Received data

17.5 SD Card Recorder

The tab "SD Card" shows the status quo of the SD recording. "Ready for Logging" is given if a well formatted SD card is inserted.

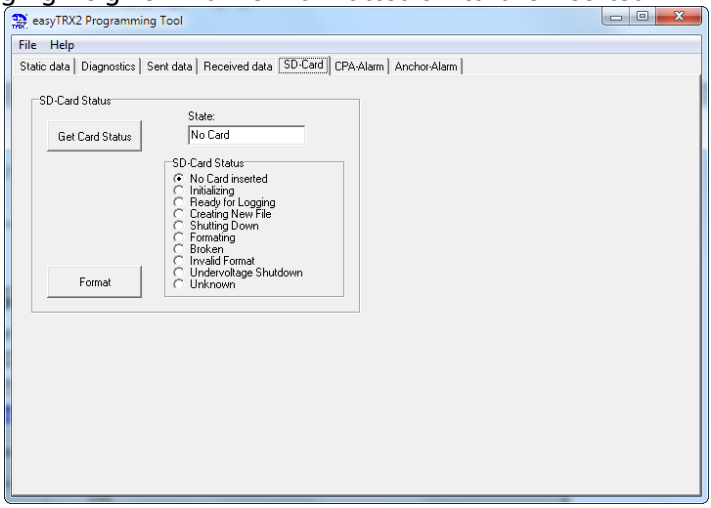


Abbildung 31-SD card

Sometimes it is necessary to click on "Format" several times as certain SD cards take more time than the easyTRX2S expects. We recommend SD-Cards from "SanDisk®" for best compatibility and reliability.

The easyTRX2S devices format the SD card in FAT format. If the card was already formatted in a PC it always needs to be formatted by the easyTRX2S again. The reason for that is that the easyTRX2S device sets up a file structure which permits to save the AIS and GPS data on the card in real time.

The easyTRX2S (-IS) is using the FAT format. If the SD Card has got another format, you have to format it again with the easyTRX2S (-IS). It's because the device is storing a special set of files, which enable real time storing of AIS and GPS data.
Once formatted, you can remove the SD card whenever you want. No data will be lost. In the case of a voltage drop the latest received data is still recorded. There is no data loss caused by power sag.
Corresponding markings are displayed in the status box.

The easyTRX2S works with SD cards capacity up to 32GB!

The internal system records data up to a volume of 2GB. This will be totally enough to store AIS data of one year in a high traffic area. The size of the SD Card is not important. Just because 2GB cards become hard to find, we decided to use cards up to 32GB.

17.6 CPA Alert

The "CPA Alert" tab gives the possibility to configure parameters which trigger an alarm. CPA means "Closest Point of Approach" to a ship transmitting its position, bearing and speed via AIS.
The easyTRX2S devices have a built-in feature which calculates the CPA with every received AIS target.
You can now set a safety radius (around your ship). If a ship enters the safety radius (in this example 500 m) within the stated time limit (here 30 minutes) the CPA alarm occurs.

You may change the radius and the time by clicking on the arrows and transfer it to the easyTRX2S by clicking on "Program". You can check the current settings of the transponder by clicking on "Read". The settings remain in the device i.e. it is not necessary to program it again after restart.
The CPA alarm can be disabled by pressing the button "CPA-Alarm ON". Here as well, the settings done with "Program" are applied to the easyTRX2S and checked with "Read".

CAUTION:
Only vessels, which do have a properly working AIS aboard, are able to trigger the CPA alert in the easyTRX2S Transceiver!! Therefore you should always watch out for other vessels which are on collision course!!!

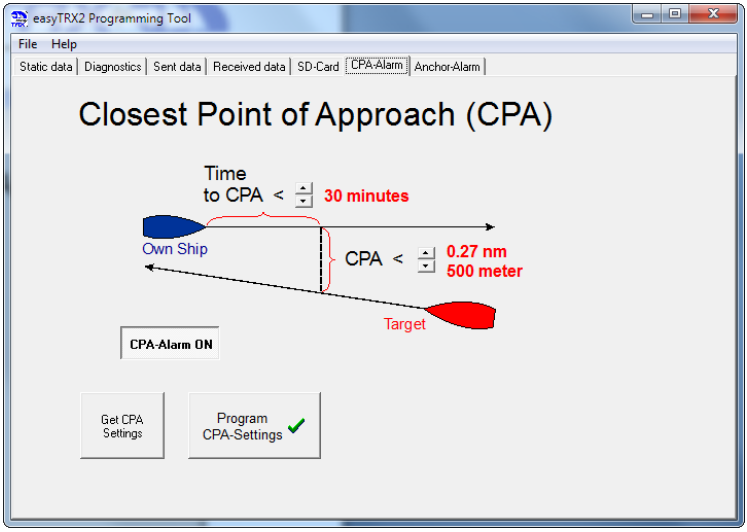


Abbildung 32-CPA alert

When a CPA alert occurs, two actions are starting:

- LED CPA alert is flashing for a few seconds

- The connection cables (white and brown) are getting the supply voltage in time with the CPA LED.

You may now connect an acoustic signal generator to these wires (e.g. the "easyCPA³" (A056), available as accessory).
This means you have got a standalone CPA alert even if the plotter is disconnected / switched off.
Another alarm occurs if an AIS-SART (AIS-Search-and-Rescue-Transmitter) (e.g. the easyRESCUE, available as accessory) is received. This emergency transmitter has the effect that the easyTRX2S or other devices of this product line activate the CPA alarm LED and the CPA alarm line as a Morse "SOS" several times.
This AIS-SART alert cannot be disabled in contrast to the CPA alert!

17.7 Anchor Alert

Another alarm is the co-called anchor alert.
It uses the internal GPS of the easyTRX2S to report the leaving of the ship from the anchor position. As with the CPA alert the LED flashes and the supply voltage is impressed to the corresponding pair of conductors. We recommend the accessory "easyCPA³" (A056) which generates a loud alarm sound (approx. 95 decibel).
If the ship is at anchor it is possible to save the anchor position via switch or via this software. In that case the anchor alert is activated. The LED flashes or alarm sound rings twice briefly for confirmation. Please keep in mind that the ship may swing around the anchor position and thus trigger a false alarm. It must also be observed that that the GPS position accuracy might vary for up to 10 m (depending on satellite-constellation or weather conditions). In case that the GPS receiver has got no position fix because of cloud coverage, an acustic alert is also triggered. As a result please do not choose a too small alerting radius.
The hardware switch of the des easyTRX2S set to the function „RX ONLY" (or Silent) by default. If you choose the possibility to set the easyTRX2S to „reception mode only" is not important you may change the switch function to "anchor alert". This makes the use of the anchor alert easier and more practicable as you do not need a PC or Laptop for activation.

In the event of an anchor alert the LED flashes and the „easyCPA³“ is beeping continuously.

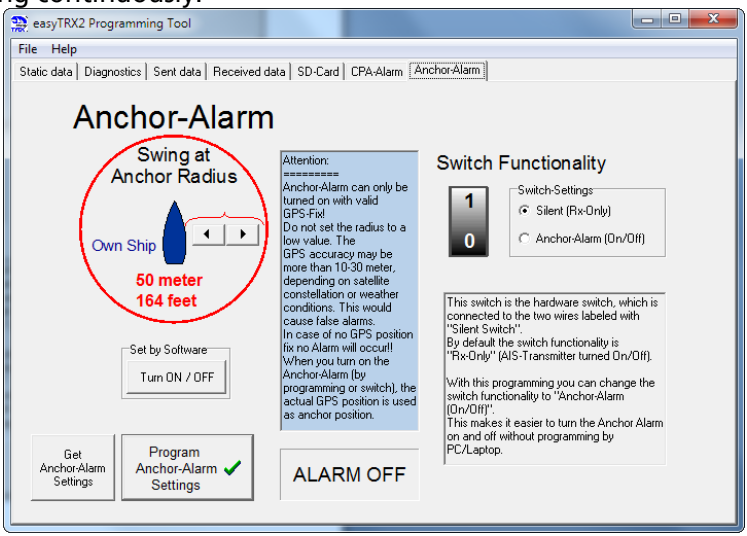

easyTRX2 Programming Tool
File Help
Static data | Diagnostics | Sent data | Received data | SD-Card | CPA-Alarm | Anchor-Alarm
Anchor-Alarm
Swing at Anchor Radius
Own Ship
50 meter
164 feet
Set by Software
Turn ON / OFF
Attention:
Anchor-Alarm can only be turned on with valid GPS-Fix!
Do not set the radius to a low value. The GPS accuracy may be more than 10-30 meter, depending on satellite constellation or weather conditions. This would cause false alarms.
In case of no GPS position fix no Alarm will occur!!
When you turn on the Anchor-Alarm (by programming or switch), the actual GPS position is used as anchor position.
Switch Functionality
1
0
Switch-Settings
Silent (Rx-Only)
Anchor-Alarm (On/Off)
This switch is the hardware switch, which is connected to the two wires labeled with "Silent Switch".
By default the switch functionality is "Rx-Only" (AIS-Transmitter turned On/Off).
With this programming you can change the switch functionality to "Anchor-Alarm (On/Off)".
This makes it easier to turn the Anchor Alarm on and off without programming by PC/Laptop.
Get Anchor-Alarm Settings
Program Anchor-Alarm Settings
ALARM OFF

Abbildung 33-Anchor alarm

17.8 Software-Update

With the menu item File => Update you can update the easyTRX2S software. The latest version is available for download on our web page. Before updating the software, please check which version number is installed in the device. In order to do this you have to "Connect" and to click on the menu item "Help". The following information is displayed:

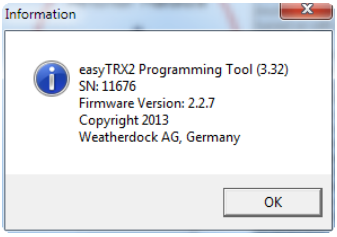


Abbildung 34-Information

This is version number 2.2.7.

After having downloaded the file, please click on "File" => "Update" and choose the update "*.wdc" file with key (1):

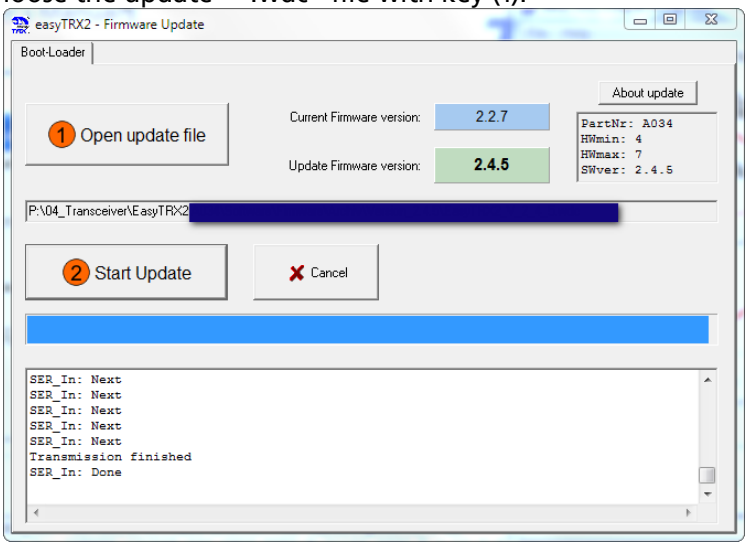
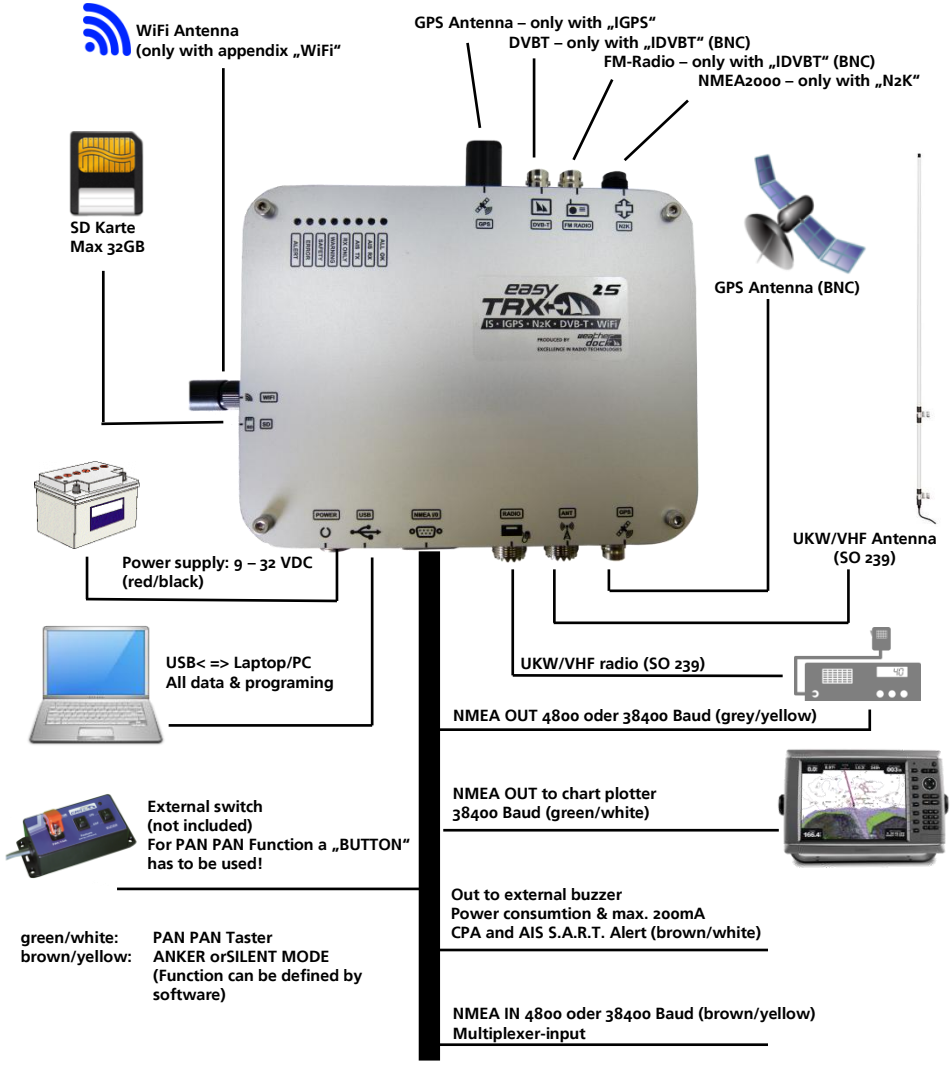


Abbildung 35-Firmware update

Here you can also see the existing version number as well as the new version number of the update.
To start the update procedure press key (2). Please make sure that the operating voltage is still on during the update and that the PC does not switch to standby or turns itself off!

18 Mechanic and electric installation recommendations



18.1 Cable assignment

Wire colours and definition

Cable group		Quantity of cables	Cable colours	Functionality	Pinnumber
1	RS422 to Plotter	6	Green	NMEA out 38400, (-)	15
2	RS422 to Plotter		White	NMEA out 38400, (+)	7
3	RS422(not on WiFi)		Rosa	NMEA in 38400, (-)	10
4	RS422(not on WiFi)		Grey	NMEA in 38400, (+)	2
5	RS422 MUX		Brown	NMEA in 4k8/38k4 (-)	11
6	RS422 MUX		Yellow	NMEA in 4k8/38k4 (+)	3
7	External switches	4	Green	Mayday switch (-)	13
8	External switches		White	Mayday switch (+)	5
9	External switches		Brown	Silent switch (+)	12
10	External switches		Yellow	Silent switch (+)	4
11	CPA	2	Brown	CPA Alarm (-)	14
12	CPA		White	CPA Alarm (+)	6
13	**RS422**	**2**	**Grey**	**NMEA Out 4k8/38k4 (-)**	**9**
14	**RS422**		**Yellow**	**NMEA Out 4k8/38k4 (+)**	**1**
	Power	2	Black	Power 11-32VDC (-)	(1)
	Power		Red	Power 11-32VDC (+)	(2)

Abbildung 36-cable colour

18.2 Splitter Function

The easy TRX2S devices with the suffix „**-IS-**“ have an antenna splitter integrated. This splitter checks whether the output comes from the VHF device or from the Class B AIS Transmitter to the antenna. If this is the case, the other connected devices are disconnected very fast. By

doing so the output is sent to the antenna and not to the other devices.

CAUTION:
IT IS NOT ALLOWED TO CONNECT A RADIO DEVICE TO THE ANTENNA INPUT PORT (RIGHT SO239-CONNECTOR) – THIS MAY CAUSE DESCTRUCTION OF THE INTERNAL AIS RECEIVER

The Class B AIS Transceiver has to disconnect the other connected units very fast (< 1 ms) when sending an AIS message. The reason for this is that the Class B Transceiver has to build up its transmission power according to standards and thus needs a splitter, which disconnects the other units even faster from the antenna. During usual reception mode all devices are connected with the same antenna.

Abbildung 37-Front connectors

18.3 WiFi-Function

Available on devices with "-**WiFi**-" in name.

All these units do have a built-in WLAN module. This creates a "hotspot" on which PC, laptop, iPad, iPhone, Android smartphones or tablets can be connected to.

All data which are forwarded to chart plotter will be forwarded 1:1 to the used mobile device.

18.3.1 Connection of WiFi-Antenna

Fix the contained WiFi antenna to the RP-SMA plug on the units left side.

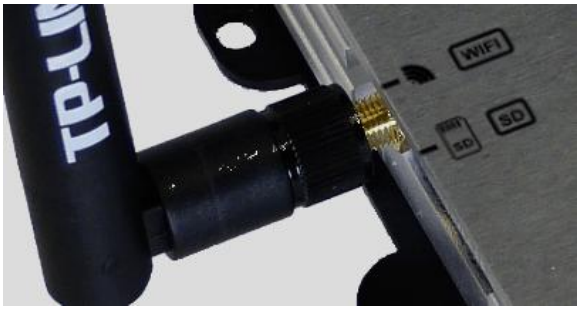


Abbildung 38-WiFi antenna

18.3.2 Connection to PC, iPad, iPhone

TCP/IP connection with Notebook/Tablet:
1. Turn your WIFI ON.
2. Search for new networks around you.
3. Establish a connection with the wireless network „easyTRX2S_xxx“ (Please find the password at the bottom of the device)
4. Now you can pick off the AIS data via TCP/IP connection. (TCP/IP settings: IP 192.168.10.1 and Port 5101)

Virtual Com Port Connection via WLAN Interface.
(Suitable for all 32Bit Windows versions)
(64Bit version requires a fee-based license, approx. € 25)

1. Turn your WIFI ON.
2. Search for new networks around you.

Abbildung 39-WiFi networks

3. Establish a connection with the Wireless network „easyTRX2S“.
Please find the password at the bottom of the device.

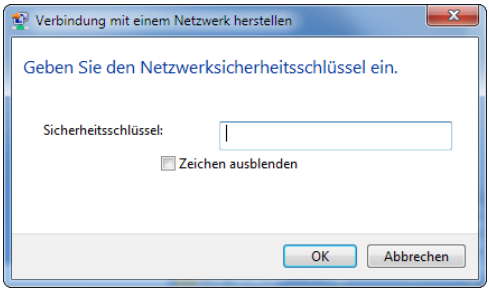


Abbildung 40-WiFi password

4. Now, please insert the enclosed CD into the CD drive.
5. Start the installation of the software “AIS_WIFI_setup”.

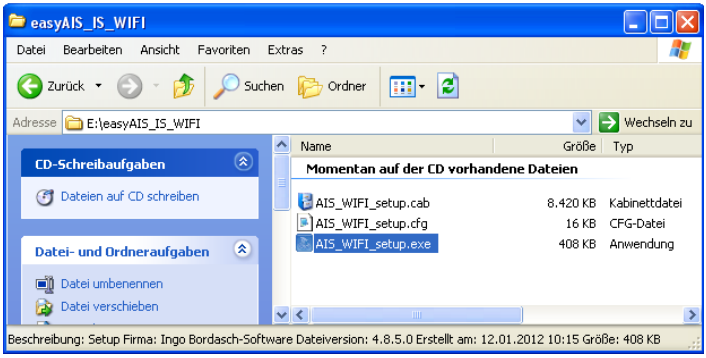


Abbildung 41-CD directory

6. Following the installation of the program is run automatically. After rebooting Windows the program is started automatically.

7. Now you can use the Com Port 80 as a data source for AIS data.

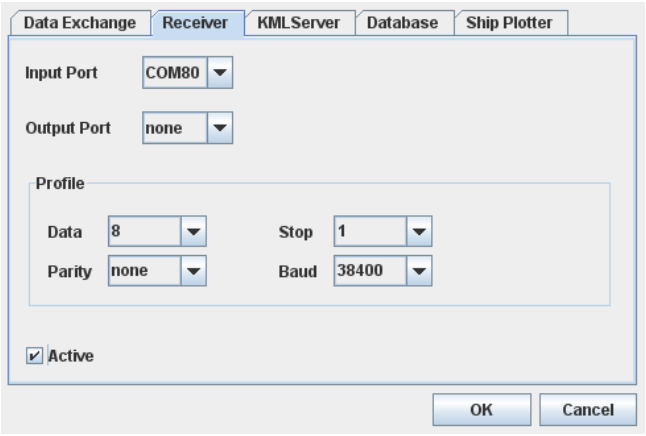


Abbildung 42-COM Port settings

Warning! Establish a wireless connection with one of the easyTRX2S WiFi devices before launching the program „AIS WIFI“.

18.3.3 Check connection

On the enclosed CD-ROM you will find the program „NMEA Terminal“. As soon as the connection of the easyTRX2S with your PC/laptop is established you can look at the dataflow with this small program.

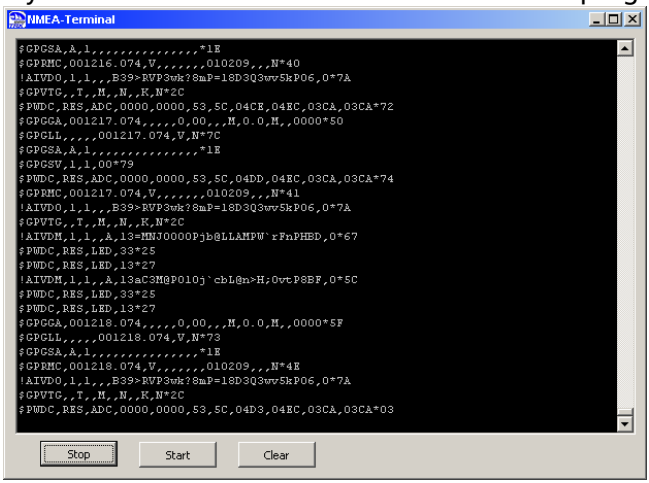


Abbildung 43-NMEA view

Declaration of data

- GPGSA => The GPGSA dataset (SA=satellites active) contains information regarding the PRN numbers of the satellites whose signals are used for determination of the position.
- GPRMC => The GPRMC dataset (RMC = recommended minimum sentence) is a minimum recommendation a GPS receiver should render (will be interpreted by chart plotter)
- GPVTG => The GPVTG dataset contains data regarding speed and direction.

- GPGGA => The GPGGA dataset is containing time, position (including altitude) and quality of the measurement (will be required by some chart plotters or DSC controller)
- GPGLL => The GPGLL dataset is a relic from times when only LORAN-C navigational systems existed and contains the geographical position. So to speak the GPS device emulates the LORAN-C receiver.
- GPGSV => The GPGSV dataset (SV=satellites in view) contains information regarding satellites, which may currently be received as well as information regarding their position, signal strength etc. There may be up to three datasets, as the allowed number of satellites is restricted to four per set (limitation to 82 characters).
- !AIVDO => The !AIVDO dataset contains your own ship data (AIS data format)
- !AIVDM => The !AIVDM dataset contains the received AIS data of another ship

18.4 Integrated GPS antenna

Available on devices with „-**IGPS**-„ in name.

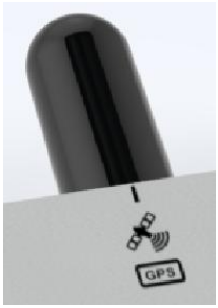


Abbildung 44-view of GPS antenna

GPS antenna with integrated pre-amplifier

- Type: Quadrifilar helix
- Polarisation: Right Hand Circular Polarized (RHCP)
- 3dB beamwidth: min 135°
- Gain (zenith): 18dB

- Noise figure: 0.8dB

Every Class B Transceiver needs a own GPS antenna for position fix and time synchronizing. With this integrated antenna there are no needs to install an external GPS antenna.

Mount the easyTRX2S with IGPS on your map table with view to the sky. We get a good reception beneath it. If you are not sure where you should fix the unit just try it before. To do this please program MMSI, ship name, callsign in the unit. If you connect then power and VHF antenna the easyTRX2S with IGPS should go to "All OK" and the green LED illuminate.

Following points could create a bad GPS reception:
- Cable on the top of internal GPS antenna within 30cm
- Boat with metal
- Windows with a thin metal surface on it.

If you try everything and there is also no GPS reception of course you are able to mount also an external antenna to it.

18.5 Integrated DVBT amplifier

Available on devices with „-**IDVBT**-„ in name.

Received frequencies from the VHF antenna will be divided and then amplified. So you can receive DVBT on your DVBT receiver together with your board antenna. Also you can connect a car radio to it.

Amplification in DVB-T range:
350 – 870 MHz @ 20dB +- 3 dB
Amplification in FM range:
150-500 kHz @ ~10dB
1-108MHz @ >= 13dB

18.5.1 Connection of DVB-T receiver / car radio:

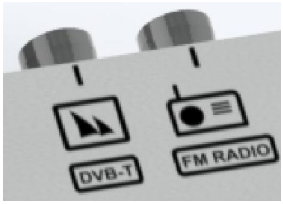


Abbildung 45-BNC connectors

On the picture above you can see how to connect your DVBT receiver (left) and car radio (right).

There are two extra accessories for it(not contained in package):

- BNC to IEC-Plug (for DVBT-receiver; Art. Nr.: B035)
- BNC to car radio plug; Art. Nr.: B033

18.6 NMEA2000

Available on devices with "**-N2K-**" in name

Abbildung 46-N2K socket

NMEA2000 was developed in 2000 by the **N**ational **M**arine **E**lectronics **A**ssociation and is used as a network system to combine about 50 devices.
It is used as an easy plug and play solution. Just connect the NMEA2000 connector by cable (not included) to your network aboard and your AIS data should come to your chart plotter.

Following PGN (Parameter Group Descriptions)
will send forward to NMEA2000:

PGN Number	PGN Name
129025	Position Rapid Update
129026	COG & SOG, Rapid Update
129029	GNSS Position Data
129038	AIS Class A Position Report
129039	AIS Class B Position Report
129040	AIS Class B Extended Position Report
129793	AIS UTC and Date Report
129794	AIS Class A Static and Voyage Related Data
129798	AIS SAR Aircraft Position Report
129802	AIS Safety Related Broadcast Message - MESSAGE 14
129809	AIS Class B "CS" Static Report, Part A
129810	AIS Class B

19 Mounting

Please mount under deck with all plugs pointing downward. Make sure that the easyTRX2S is not exposed to direct sunlight or splash water.

Please use the enclosed screws only!

19.1 Dimensions of the easyTRX2S

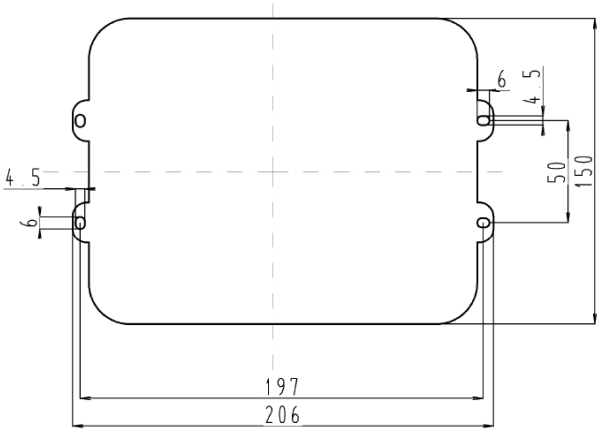


Abbildung 47-Dimensions

Please keep area of 10-15cm clear around the unit!

19.2 VHF Antenna

The standard VHF antenna, you are currently using for VHF radio, is connected to the easyTRX2S devices with the suffix „IS".
For the other devices without the suffix "IS" you need either an additional VHF antenna or you have to connect an external antenna splitter e.g. the easySPLIT OCB (item no. A027) between the existing VHF antenna and the easyTRX2S device.

If you have older AIS receiver with external VHF splitter, please do not use this splitter in combination with this AIS Class B transceiver.

19.3 GPS Antenna

The connection to easyTRX2S devices requires a 5V DC feed for GPS antennas.

The used GPS antenna has to be a passive one (i.e. it should incorporate a LNA) and has to be suitable for marine shipboard applications (index of protection, ruggedness, means of mounting, etc.). An antenna should be selected with a gain (in dB) depending on the length of cable between the antenna and the AIS unit; after subtraction of cable and connector losses a minimum total gain of 20 dB should be available at the easyTRX2S unit GPS antenna connector. The reason for this is that a proper and flawless GPS signal is required for a correct function of the easyTRX2S Transceiver product line. (Issue time-slot method; see „What is AIS".
The GPS antenna to be used for the easyTRX2S Transceiver must be a dedicated antenna, i.e. not shared with any other GPS receiver.
If you are equipped with a GPS antenna, e.g. for your plotter, there might be the possibility to use both devices with this antenna. At first connect the GPS antenna to the easyTRX2S device. When your plotter is able to receive and process GPS data from an external source you may establish the connection to your plotter with the green and white cable (pos. 7+8).
If you chart plotter is not suitable you need both devices and a GPS antenna respectively.

Rules for mounting of the GPS Antenna

- The GPS antenna should be mounted in an elevated position and free of shadow effect from the ship's superstructure (i.e. in free view to the receiving satellite signals)
- The position of the GPS antenna should provide a free view through 360° with a vertical angle of 5° to 90° above the horizon
- The GPS signals are very sensitive to irradiation of radar, Inmarsat, iridium, etc. transmitters and should be placed as far away as possible.

19.4 Connection to a plotter

If you want to operate the easyTRX2S Transceiver with a chart plotter please connect the devices with your plotter.

Based on the cable assignment (under position 1 and 2 in the spreadsheet) the green and white cable of the 6-pole cable are necessary.

Please connect the cable to the plotter ground, the white cable „contains" the AIS data. This white cable has to be connected to the NMEA data **input** of the chart plotter. If the plotter interface is configured to 38400 baud and the plotter is ready for AIS data, received data will be shown immediately.

19.5 External switches

It is possible to connect external switches to all easyTRX2S devices. Moreover you have the opportunity to connect an external buzzer for the integrated AIS S.A.R.T. and CPA alert.

19.5.1 SRM button

According to the cable assignment under 3.9.1(Pos. 7 and Pos. 8 in the spreadsheet), the green and white cable of the 4-pole cable are destined for this functionality. If you connect these cables with a push button (not a SWITCH) of your switchboard and close together the cables with the button, a SRM (Safety related message) is sent by the device.

The preset SRM message which is transmitted is called:
PAN PAN PAN. Subsequently the SRM LED starts flashing for one minute . When this LED stops flashing you may send another SRM message at the push of the button. (As a consequence more frequent transmission than one SRM per minute is not possible which corresponds to international AIS regulations. Please do not connect a switch with the cables. A permanently connected switch does not lead to a transmission every minute. Our transceivers verify a „real" push of a button to trigger a SRM transmission.)

If you want to use this function in an easy way, you can purchase the easyCPA³ (A056) as accessory. It is a small box which includes a button for PAN PAN and a switch for switching to "silent mode" or "anchor

alert" next to an external signal generator for CPA alert and AIS S.A.R.T.

19.5.2 Switch (function set by software)

The default value is set to silent mode. If you want to change the function please do this by using the programming tool.

19.5.2.1 Silent mode „pure receiving mode"

According to the cable assignment under page 80, the brown and the yellow cable of the 4-pole cable are destined for this functionality. If these cables are connected to a SWITCH (not a BUTTON) e.g. switchboard and short-circuit the cables with the button, i.e. connect them the easyTRX2S Transceiver is set to pure receiving mode, i.e. "silent mode".
By opening the switch the TRX2S resets to normal conditions automatically, i.e. receiving and transmitting mode.

This function is preset by default with a switch on the easyCPA³ unit.

19.5.2.2 Anchor alarm

If you want to change the function to anchor alarm please open the programming tool – see under 17.7. You can choose one function. If the anchor alarm is active by set the switch to "1" and you drive out of range of your set position the TRX2S set the output port of CPA to high and an external buzzer e.g. easyCPA³ will switch on.

19.6 External Devices (additional)

19.6.1 Buzzer

There is the possibility, to connect the easyCPA³ as an additional accessory. The device has predefined switches and buttons for the above-mentioned functions. The easyCPA³ additionally has an external signal generator for CPA alert and AIS S.A.R.T.
Based on the cable assignment under position 80 you may connect our small external signal generator with the brown and white cable. This is a device which is only suitable for CPA or anchor alert and AIS S.A.R.T.

Simply connect the corresponding colors.
When the CPA is connected the easyTRX2S devices send an alarm signal to the switching output. The attached signal generator easyCPA generates a loud and clearly audible alarm sound. This alarm sound rings out at a CPA alert or if an AIS SART message is received.

19.6.2 Multiplexer (NMEA-Input, 38400/4800 baud)

You may connect a NMEA sensor (e.g. log, anemometer, etc.) with a baud rate of 4800 or 38400 baud to the 6 pole cable of the pair of conductors (brown/yellow) position 5 and 6. The sensor data is put out to the plotter and PC together with the AIS and GPS data.
(Note: You cannot connect a GPS receiver as the easyTRX2S has its own GPS receiver, and only these data can be interpreted and displayed at the plotter or PC.
If you want to multiplex data from a 38400 baud device please set the input baud rate with the programming tool.
You can find this under "static data" => "Mux-in"

20 Commissioning of an easyTRX2S transceiver

20.1 Turning-on of an easyTRX2S

After the easyTRX2S Transceiver is connected according point 3 to the 12V supply and is switched on, all eight visible LED on the top of the unit will illuminate once for a period of one second. Subsequently every 2nd LED flashes for one second and after that the remaining LED will be illuminated for one second.

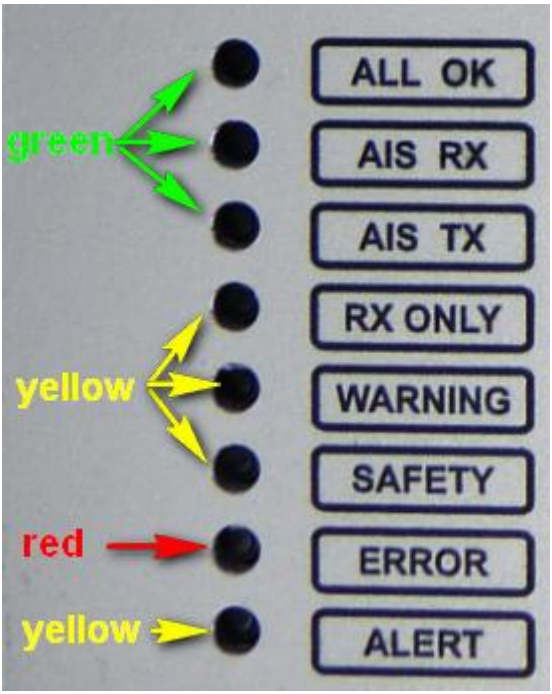


Abbildung 48-LED colours

- ALERT

This LED flashes if a ship enters the defined CPA (Closest point of approach) radius, an AIS S.A.R.T alert is received or your anchor alarm is activated

- ERROR
  This LED is illuminated if there is an error. They cause may be the antenna or e.g. a hardware error. Use to Programming tool for more precise error analysis.
- SAFETY.
  This LED flashes if a safety message is transmitted.

- WARNING
  The warning LED flashes if e.g. for a longer period of time no GPS data has been received. This LED is also on if the device is in „Silent Mode“, i.e. pure receiving mode .
- RX ONLY
  This LED flashes together with the warning LED, provided that the easyTRX2S-IS_Wifi is in pure receiving mode or “silent mode”.
- AIS TX
  This LED flashes each time when the device has sent an AIS message.
- AIS RX
  This LED flashes each time when an AIS message is received.
- All OK
  This LED is illuminated permanently if all functions work properly.

20.2 DATA RECORDING – SD CARD

Also see point 17.5 on page 73
The easyTRX2S devices provide the possibility to record data onto a SD card. All data rendered on the NMEA0183 and USB is recorded on a SD card.

This means that all AIS messages (received and transmitted) are recorded along with GPS information.
You do not need to take specific precautions regarding the recording. Simply insert the SD card into the slot until you hear the snap. The easyTRX2S starts recording automatically.
However, it is required to format the SD card with the Programming tool at the first start. See “Chapter 18.5 SD card”.
The user may analyze the recorded data with a specific PC software or logbook software, which displays your own movement and the movement of other adjacent ships.
If previous recordings exist on the card the new data is simply attached. If the memory space on the SD card is full the oldest data is overwritten successively. No data will be lost by switching off the easyTRX2S. If you remove the SD card during recording some data might be lost. Thus we recommend to switch the easyTRX2S off before removing the SD card.

Usage of SD cards up to 32 GB is possible. SD cards with more memory space are not supported. We recommend SD cards of the brand "SanDisk" for best compatibility and reliability. With a SD card recording for 100 days in high frequented areas is possible (e.g. Rotterdam port) in less frequented areas of course considerably more.

Please find the analyzer „SD Analysis“ on the enclosed CD-ROM. The software is absolutely self-explanatory and easy to use. Therefore we will not go into details about this software.
To analyze the data you have to remove the SD card from your TRX2S device and then put it into the card reader of your PC.
For programming of the device and the SD card software there is a separate quick guide. We would be happy to send it to you via email. You can also download it from our Website.
A GPS signal is necessary for the AIS data analysis as the information regarding position and time are mandatory.

21 TROUBLESHOOTING

Problem	Cause	Solution
Unable to connect to easyTRX2S	USB cable connected correctly?	**Install the Windows driver for the USB serial interface (FTDI) from the internet. (For Windows select the „recommended“ driver installation).** **The driver is also contained on the CD and will be installed automatically.**
	Device configured properly?	**Repeat configuration, if necessary contact your service partner**

No data output	not connected	**Check connection; are cable colors correct? Is the data output of the easyTRX2S device connected with the data input of the plotter?** **Is the data rate of the NMEA port of the plotter correct? (standard value 38400 baud!)**
Entering MMSI not possible	**MMSI used before?**	**The MMSI cannot be programmed twice. The device must be sent back to reset the MMSI.** **Please ask your service partner for detailed information.**

22 Maintenance

The easyTRX2S product line does not contain parts that require maintenance. Avoid using chemical solvents to clean the easyTRX2S as some solvents can damage the case material.
Unauthorized opening of the device will invalidate the warranty.

23 STANDARDS

This product complies with all necessary standards according to the European R&TTE directive for Article 3.1(a), 3.1(b), 3.2 and 3.3(e). The following standards have been followed in pursuance of this:

- IEC62287-1: 2006-03
- IEC60945: 2002-08
- IEC61162-1:
- IEC61108-1: GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS) – Part 1:
- EN 301 843-1 v2.1:

- EN 50383: 2002
- EN60950-1:2006

24 Technical data

Parameter	Value
Dimensions	207mm x 150mm x 30mm
Weight	≈ 800 gram (depends on TRX2S variant)
Power	9,6VDC –32,1 VDC
Power consumption	3,6W @12VDC
Maximum current consumption	300mA @12VDC, peak current 1,9A
GPS receiver (internally in AIS)	IEC 61108-1 compliant
Ports:	USB
	RS422 NMEA 38.4k / 4.8kBaud in / out
	RS422 NMEA 4.8kBaud in
Connectors:	
VHF aerial input	Socket SO 239
VHF radio input	Socket SO239
GPS antenna	Socket BNC
Network/data	S422 / data / network (15 pole Sub D socket)
Card reader	SD card, max. 32GB
VHF Transceiver	1 transmitter
	2 receivers (one receiver for AIS Channel 1 and 2)
AIS1: 161.975 MHz AIS2: 162.025 MHz	Frequency: 156.025 and 162.025 MHz in 25 kHz steps
DSC	DSC channel 70 reception for AIS channel management is implemented.
Transmission power	33dBm ± 1.5 dB (of 1,4W - 2,8W)

Parameter	Value
Channel Bandwidth	25kHz
Channel spacing	25kHz
Modulation modes	25kHz GMSK (AIS, TX and RX)
	25kHz AFSK (DSC, RX only)
Bit rate	9600 b/s ± 50 ppm (GMSK)
	1200 b/s ± 30 ppm (FSK)
RX sensitivity	– 107dBm 25kHz (Message error rate 20%)
Co-channel suppression	10dB
Adjacent channel suppression	70dB
Intermodulation ratio	65dB
Blocking	84dB
Environmental	IEC 60945
Operating temperature	-25°C to +55°C
AIS software version	3.x.x
Protection class	IEC 62287, IP54
Notifications	Power supply "ON", hardware error, safety messages, silent mode, transmitting receiving CPA alert & AIS S.A.R.T. alert
Extra equipment	Via button for Silent mode / Anchor alert, via button for SRM, transmitting safety message or silent mode. Switch contact for external signal source for CPA or AIS-SART signal. (200mA max. at contiguous irregular input voltage of the easyTRX2S unit)
Compass safe distance	0,8m

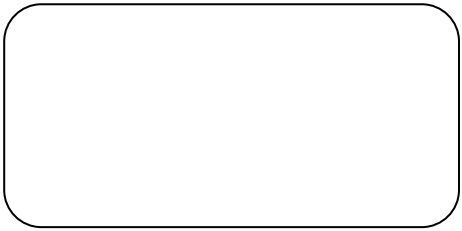
Parameter	Value
Supported AIS messages in transmission mode	Msg. 18: The Class B Position Report (dynamic data) is transmitted: Every 30 seconds if speed over ground (SOG) is > 2 kn. Every 3 minutes if speed over ground (SOG) is < 2 kn. Message 23 of a base station may demand and change transmission intervals. Msg.19: Extended position report may be requested by a base station. Msg.24: Static data Type 24A / 24B is sent every 6 minutes. Msg.14: The safety message (SRM) sends information: "PAN PAN PAN". This is only possible upon activation of the external button. IMPORTANT: It is not possible to initiate other AIS messages with the easyTRX2S than the ones stated above.

25 Contact and support information

Although WEATHERDOCK strives for accuracy in all its publications; this material may contain errors or omissions, and is subject to change without prior notice.

Contact:
Contact your local dealer for WEATHERDOCK AIS support in most cases he can help quickly and straightforwardly.

Stamp of your dealer:



If he cannot help you we are happy to provide help solving your problem:

Weatherdock AG
Sigmundstraße 180
90431 Nürnberg
Tel: +49 911-37 66 38 30
support@weatherdock.de
www.easyais.de

Please do not send an apparently defective device to us without prior consultation. In most cases the problem can be solved via telephone or email.

26 License agreement

BY USING THE EASYTRX2S YOU AGREE TO BE BOUND BY THE CONDITIONS OF THE FOLLOWING WARRANTY. PLEASE READ THIS CAREFULLY.
WEATHERDOCK AG GRANTS YOU A LIMITED LICENSE TO USE THIS DEVICE WEATHERDOCK AG GRANTS YOU A LIMITED LICENSE TO USE THIS DEVICE IN NORMAL OPERATION. TITLES, PROPERTY RIGHTS AS WELL AS INTELLECTUAL PROPERTY RIGHTS CONTAINED IN AND OF THE SOFTWARE REMAIN IN WEATHERDOCK AG.

27 Warranty

WEATHERDOCK AG GRANTS A WARRANTY OF 2 YEARS FROM THE DATE OF PURCHASE FOR DEFECTS IN MATERIAL OR WORKMANSHIP OF THIS PRODUCT. WITHIN THIS PERIOD WEATHERDOCK WILL AT ITS SOLE OPTION REPAIR OR REPLACE ANY COMPONENTS THAT FAIL IN NORMAL USE. SUCH REPAIRS OR REPLACEMENT WILL BE MADE AT NO CHARGE TO THE CUSTOMER FOR PARTS OR LABOR, PROVIDED THAT THE CUSTOMER SHALL BE RESPONSIBLE FOR ANY TRANSPORTATION COST. THIS WARRANTY DOES NOT COVER FAILURES DUE TO ABUSE, MISUSE, ACCIDENT OR UNAUTHORIZED ALTERATION OR REPAIRS. THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED OR STATUTORY, INCLUDING ANY LIABILITY ARISING UNDER ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, STATUTORY OR OTHERWISE. IN NO EVENT SHALL WEATHERDOCK BE LIABLE FOR ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THIS PRODUCT OR FROM DEFECTS IN THE PRODUCT. WEATHERDOCK RETAINS THE EXCLUSIVE RIGHT TO REPAIR OR REPLACE THE UNIT OR SOFTWARE OR OFFER A FULL REFUND OF THE PURCHASE PRICE AT ITS SOLE DISCRETION. SUCH REMEDY SHALL BE YOUR SOLE AND EXCLUSIVE REMEDY FOR BREACH OF WARRANTY. PRODUCTS PURCHASED IN ONLINE-AUCTIONS DO NOT ENTITLE YOU TO DEDUCTIONS OR TO THE USE OF WEATHERDOCK'S SPECIAL OFFERS. FURTHERMORE WE DO NOT ACCEPT PURCHASE CONFIRMATIONS FROM ONLINE AUCTIONS AS EVIDENCE FOR WARRANTY CLAIMS. AN ORIGINAL RECEIPT IS COMPULSORY FOR SATISFACTION OF WARRANTY CLAIMS. WEATHERDOCK DOES NOT REPLACE MISSING DEVICE OR ACCESSORY PARTS IN PRODUCTS WHICH WERE PURCHASED IN ONLINE AUCTIONS. IN A WARRANTY CASE PLEASE CONTACT YOUR WEATHERDOCK DEALER. HE WILL AGREE ON THE NEXT STEPS WITH YOU. IN THE CASE OF DISPATCH PACK UP THE DEVICE PROPERLY AND SEND IT SUFFICIENTLY STAMPED TO THE ADDRESS STATED BY YOUR DEALER. FOR WARRANTY REPAIR ALWAYS ENCLOSE A COPY OF YOUR ORIGINAL SALES RECEIPT FOR

EVIDENCE OF OWNERSHIP. THE WEATHERDOCK AG EASYTRX2S-IS_WIFI DOES NOT CONTAIN PARTS WHICH HAVE TO BE REPAIRED. IF YOU HAVE A PROBLEM WITH YOUR DEVICE, PLEASE CONTACT YOUR EASYTRX2S-IS_WIFI DEALER. ANY ATTEMPT TO OPEN, ALTER OR MODIFY THE DEVICE WILL INVALIDATE WARRANTY AND MAY DAMAGE THE DEVICE IRREPARABLY.

WARNING

IT IS THE SOLE RESPONSIBILITY OF THE OWNER/OPERATOR OF THE SHIP TO COMMAND THE VESSEL SAFELY AND TO BE IN FULL CONTROL OF ALL OPERATING CONDITIONS DURING THE ENTIRE TRAVEL TIME. BY MISTAKEN CONDUCT OF THE OPERATOR OF A SHIP EQUIPPED WITH A DEVICE FROM THE EASYTRX2S PRODUCT LINE IF THE OPERATOR DOES PAY UNDIVIDED ATTENTION TO OPERATION AND SURROUNDING CONDITION DAMAGE OR PERSONAL INJURY MAY BE CAUSED IN THE EVENT OF AN ACCIDENT.

CAUTION:

THE RESPONSIBILITY RESTS ON THE USER ALONE TO USE THE EASYTRX2S PRUDENTLY. EASYTRX2S DOES NOT RELIEVE YOU FROM DUTY OF CARE!

THEREFORE GOOD SEAMANSHIP IS STILL ESSENTIAL.

Index

*.wdc 26
Abmaße..... 53
AIS receiving data 72
AIS RX.....49, 96
AIS Sende-Informationen18
AIS standards 64
AIS Standards.....10
AIS transmitting data.....71
AIS TX 49
ALERT 48
All OK.....49, 96
Anchor Alert 76
Anker-Alarm 24, 46
Anschluss an den Plotter 44
Anschluss der WiFi-Antenne..... 32
Anschluss DVB-T Empfänger / Autoradio: 40
Aufzeichnung 20
Buzzer 93
Cable assignment 80
Check connection 85
Connection of DVB-T receiver / car radio 88
Connection of WiFi-Antenna..... 82
Connection to a plotter ..91
Contact.....102
CPA Alarm..... 54
CPA alert 100
CPA Alert..... 74
CPA-Alarm..... 22
DATA RECORDING.....96
Daten Aufzeichnung..... 49
Declaration of data..... 85
Diagnostics.....15, 69
Dimensions of the easyTRX2S..... 90
dynamic data 101
Dynamische Daten 55
Dynamische Informationen 11
Einschalten des easyTRX2S 47
Empfangsempfindlichkeit 54
Empfehlungen..... 28
English User-Manual 59
Erklärung der Datensätze: 37
ERROR 48, 95
External switches..... 92
Externe GPS Antenne..... 43
Externe Schalter 44
Externes Zusatzgerät 46
Fahrtspezifische Information..... 11
Faustregeln für die Montage..... 43
Fehlerbehebung..... 51
Gewährleistung.....57
GPS Antenna..... 90
Hardware Status 71
Integrated DVBT amplifier 87
Integrated GPS antenna 86
Integrierte GPS-Antenne 38
Integrierter DVBT-Verstärker..... 39

Kabelbelegung 29
Kontakt 55
LED display 71
License agreement 103
Lieferumfang 14
Lizenzvereinbarung 56
Maintenance 98
Maße des easyTRX2S 42
MMSI 51, 98
Montage: 41
Mounting 89
Multiplexer 47, 94
N2K 40
NMEA2000 88
Normen 52
password 83
Programming 68
Received Data 19
recommendations 79
Responsible authority 62
RX ONLY 49, 96
SAFETY 48
Schalter (Funktion einstellbar) 45
SCOPE OF DELIVERY 67
SD Card Recorder 73
Silent mode 93
Software-Update 77
SOTDMA 65
Spezifikation CPA-Ausgang 24
Splitter Function 80
Splitter-Funktion 31
SRM 54, 55, 100, 101
SRM button 92
SRM Taster 44
STANDARDS 98
static data 101
Static data 68
Statische Daten 14, 55
Statische Information 11
Summer (Signalgeber) ... 46
SYSTEMVORAUSSETZUNGEN 9
Technical data 99
Technische Daten 53
TROUBLESHOOTING 97
Turning-on 94
UKW Antenne 42
Update 25
Verbindung prüfen 35
Verbindung zum PC, iOs, Android-Geräten 32
Verstärkung im DVB-T Bereich: 39
Verstärkung im FM-Bereich: 39
VHF Antenna 90
Virtuelle COM-Port 33
Warranty 103
WARTUNG 52
Was ist AIS? 9
What is AIS??? 63
WiFi-Function 81
WiFi-Funktion 32

28 Abbildungsverzeichnis

Abbildung 1-AIS-Netzwerk 13
Abbildung 2-Statische Daten 15
Abbildung 3-Diagnostic 16
Abbildung 4-Gesendete Daten 19
Abbildung 5-Empfangene Daten 20
Abbildung 6-SD Karte 21
Abbildung 7-Einstellung CPA-Alarm 23
Abbildung 8-Ankeralarm 25
Abbildung 9-Info Programmingtool 26
Abbildung 10-Update 26
Abbildung 11-Kabelfarben 29
Abbildung 13-Anschlussschema 30
Abbildung 13-Frontanschlüsse 31
Abbildung 14-WIFI-Antenne 32
Abbildung 15-Empfangene WLAN Netze 33
Abbildung 16-WLAN Passwort eingeben 34
Abbildung 17-CD Verzeichnis 34
Abbildung 18-COM Port Einstellungen 35
Abbildung 19-COM Port Konfiguration 36
Abbildung 20-Eingehende Daten 37
Abbildung 21-Ansicht GPS Antenne 38
Abbildung 22-Ansicht BNC-Buchsen 40
Abbildung 23-Ansicht N2K Buchse 40
Abbildung 24-Bemaßung 42
Abbildung 25-LED Farben 48
Abbildung 26-AIS Network 67
Abbildung 27-Static data 68
Abbildung 28-Diagnostic 70
Abbildung 29-Sent data 72
Abbildung 30-Received data 73
Abbildung 31-SD card 73
Abbildung 32-CPA alert 75
Abbildung 33-Anchor alarm 77
Abbildung 34-Information 77

Abbildung 35-Firmware update 78
Abbildung 36-cable colour 80
Abbildung 37-Front connectors 81
Abbildung 38-WiFi antenna 82
Abbildung 39-WiFi networks 83
Abbildung 40-WiFi password 83
Abbildung 41-CD directory 84
Abbildung 42-COM Port settings 84
Abbildung 43-NMEA view 85
Abbildung 44-view of GPS antenna 86
Abbildung 45-BNC connectors 88
Abbildung 46-N2K socket 88
Abbildung 47-Dimensions 90
Abbildung 48-LED colours 95